LETTERS TO THE EDITOR.

*** Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.*

On request in advance, one hundred copies of the number containing his communication will be furnished free to any correspondent.

The editor will be glad to publish any queries consonant with the character of the journal.

A Suggestion to Rain-Makers.

WHILE these interesting and expensive attempts to produce rain by explosions are being carried out, it should be of special interest to science to ascertain what would be their effect when the general conditions of the atmosphere are favorable for rainfall. The promoters of these experiments show certainly great faith in their theory by selecting the worst imaginable conditions of the arid west for their playing ground; and though faith is an excellent thing, which is said to be even capable of moving mountains, and though Moses, when he was brimful of faith, produced water by striking a rock in the desert, still I am afraid these experiments may have taxed their theory too heavily by venturing to produce rain under the dry conditions generally prevailing in Texas.

Among the absolutely necessary conditions for rainfall is this, that the surface-air should not be dry; and whatever the effect of explosions may be at a higher level, the rain-drops cannot reach the ground by passing through dry surface-air, and it is not conceivable how explosions could suddenly change the dry surface-air into moist or saturated air.

But while these expensive experiments are being gone through, it might be of special interest to ascertain what would be the effect of explosions during a natural rain, or immediately after a natural rain has ceased; and I venture to predict that in the first case the concussion might give a sudden impetus to the downpour, and in the latter case likely produce an after-shower of short duration; and these results would be confirmatory of some experiments whereby I have ascertained that condensation is procurable by compression of saturated air.

A flash of lightning has often been observed to be followed by a sudden increase of downpour in its immediate neighborhood, and although this is likely due to electrical rather than mechanical causes, still I feel confident that a compression-wave passing through saturated air would result in similar effects; and whether this is actually the fact ought therefore to be ascertained while the means of doing so are at hand and while the general interest is awakened on the subject, — if I may venture to make this suggestion.

FRANZ A. VELSCHOW.

Brooklyn, Aug. 31.

BOOK-REVIEWS.

A Treatise upon Wire, its Manufacture and Uses. By J. BUCKNALL SMITH. New York, Wiley. 4°. $3.

So far as we know, there is no other treatise upon wire which covers so much of the history and uses of the material as the one before us. The manufacture of gold wire dates back at least to 1700 B.C. The present method of drawing wire has been practised certainly in the fourteenth century in some portions of Germany. From these early beginnings our author traces the history of wire and its uses. It was not till 1565 that machine-drawn wire of home make was available in England for the making of hair-pins for Queen Elizabeth; but by 1630 the home industry had grown to such importance as to lead to the total prohibition, by Charles I., of the importation into England of foreign wire.

The uses of wire are, of course, many, and to each our author gives attention in turn. There are the electrical applications, which call for consideration of the tensile strength of the material and its conductivity; there are its uses in netting, gauze, cloth, and cards; there are the pin-making industry and the manufacture of needles; the making of umbrella and spectacle frames, of springs, cycle spokes, nails, and music strings, each of which makes it necessary to produce a wire having properties which shall suit it to the special use. The first chapter treats of iron and steel wire, the latter of which has been brought to a high degree of tensile strength, with the resulting possibility of cable-roads and improved means of transportation on wire-rope railways.

The second chapter is devoted to copper, bronze, brass, platinum, and gold wire. This leads to the consideration of very fine wires and the question of measurement and gauging, to which last subject the third chapter is given up. The fourth chapter, on electrical conductors, closes the first section of the book, which is more especially on the manufacture of wire.

The second section of the book covers the application of wire in ropes, netting, woven fabrics, fencing materials, staples, nails, etc.

The number of illustrations is large and of a character to greatly increase the value of the book.

AMONG THE PUBLISHERS.

AT the beginning of October an increase of 33⅓ per cent will be made in the amount of reading-matter printed in the New York *Critic*.

— "An introduction to the Study of Petrology: the Igneous Rocks," by Frederick H. Hatch, has recently been published by Macmillan. This is a descriptive work of small size. The author does not give any attention to the methods of examining rock sections, etc., but aims to describe the mineral constituents and internal structures of the igneous rocks, their mode of occurrence, and their origin.

— John Wiley & Sons, New York, have issued a third edition of Ludlow's "Elements of Trigonometry." The author is Lieut. Henry H. Ludlow, U.S.A., who had the co-operation of Edgar W. Bass, professor of mathematics at West Point. The requirements of the United States Military Academy determined the extent and detail of treatment. The book contains both plane and spherical trigonometry, and tables of logarithms of numbers and the trigonometric functions.

— Messrs. Longmans, Green, & Co. brought out not long ago a book by W. Hewitt, science demonstrator for the Liverpool school board, entitled "Elementary Science Lessons," which aims to carry instruction in science into lower grades of school work than any thing we remember to have seen. The first experiments are made with a sheet of window-glass, a burning candle, and a glass bottle or tumbler, which pieces of apparatus are made to serve many a useful purpose in bringing home physical truths to the infant minds during the course laid out by the author. Yet we often question the wisdom of teaching a child in the class that glass is smooth.

— The American Academy of Political and Social Science has recently published a monograph on "Recent Constitution Making in the United States," by Francis Newton Thorpe, Professor of Constitutional History in the University of Pennsylvania. The paper is a review of the work accomplished by the Constitutional Conventions of North Dakota, South Dakota, Montana, and Washington. The academy has also recently published a paper on the development of economic science in Italy, by Achille Loria, who is Professor of Political Economy and Statistics in the University of Siena.

— The Rural Publishing Company, New York, has recently brought out "The Nursery Book," which is a guide to the multiplication and pollination of plants. The author is Professor L. H. Bailey of the Cornell Agricultural Experiment Station at Ithaca, N.Y. A nursery is, by Americans at any rate, understood to mean a place where woody plants only are cultivated; but our author designates by the word an establishment for the propagation of all plants. The book aims to give an account of the methods commonly employed in the propagation and crossing of plants; of the ultimate results and influences of these methods no account is taken. The free use of competent criticism by experienced propagators was resorted to by the author while writing the book, and it is believed that all the methods described have met with approval in this country. More than half the volume is occupied by a "nursery list," which is descriptive, and covers all the plants ordinarily grown by horticulturists in this country for food or ornament.

— "The Physical Diagnosis of the Diseases of the Heart and Lungs, and Thoracic Aneurism," by D. M. Cammann, M.D., has recently been published by G. P. Putnam's Sons, New York. This book is the result of notes thrown together for use in teach-